

Notice of Allowability

Application No.

10/692,983

Examiner

Krisanne Jastrzab

Applicant(s)

FORNEY ET AL.

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview of 8/23/2005.
2. ☒ The allowed claim(s) is/are 11-20, 32-36, 39 and 41 (now renumbered 1-17, respectively).
3. ☒ The drawings filed on 24 October 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 8/23/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Krisanne Jastrzab
Primary Examiner
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EXAMINER'S AMENDMENT

An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on Atty. Todd Deveau, he requested an extension of time for ONE MONTH(S) and authorized the Director to charge Deposit Account No. 20-0778 the required fee of \$60.00 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In claim 18, the dependency has been changed from claim 11 to claim 17.

In the specification, page 8, line 25, both recitations of "405" have been changed to -405a--. In line 29, "405" has been changed to -405a--.

On page 9, line 1, both recitations of "405" have been changed to -405a--. In line 15, "405" has been changed to -405a--.

The following changes to the drawings have been approved by the examiner and agreed upon by applicant: in Fig. 4, the "annular channel" identified as element 405 has been changed to 405a, while the rotor also identified as 405, remains so. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

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The following is an examiner's statement of reasons for allowance: the closest prior art of record, namely Woo, Rolchigo and Wilson, fail to clearly teach or suggest the provision of two annular cylinders configured to form two annular channels with an inlet and an outlet configure as defined in claim 11 and depicted in Fig. 4, nor does the prior art of record teach or suggest the ratio of penetration depth of the energy to the velocity of the boundary layer as specifically recited in claim 32..

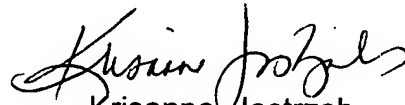
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krisanne Jastrzab whose telephone number is 571-272-1279. The examiner can normally be reached on Mon.-Wed. 6:30am-4:00pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Kim can be reached on 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krisanne Jastrzab
Primary Examiner
Art Unit 1744

August 29, 2005

fluid with an anti-microbial amount of energy. The anti-microbial amount of energy can be ultraviolet light in an amount sufficient to kill or inhibit microbial growth in the fluid or render the fluid safe for human consumption. Suitable fluids include, but are not limited to, foodstuffs such as beverages, milk, juice, soft drinks, or alcoholic beverages, and waste water.

5 In another embodiment, the ratio of the penetration depth of the energy to the velocity boundary layer thickness in the fluid is less than about 1, more preferably from about 0.5 to about 1.

Other systems, methods, features, and advantages of the present invention will be or become apparent to one with skill in the art upon examination of the following drawings and
10 detailed description. It is intended that all such additional systems, methods, features, and advantages be included within this description, be within the scope of the present invention, and be protected by the accompanying claims.

DRAWINGS
BRIEF DESCRIPTION OF THE FIGURES

Many aspects of the invention can be better understood with reference to the
15 following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

Fig. 1A is an illustration of Taylor vortices between two concentric cylinders. Inner
20 cylinder rotating, outer cylinder at rest; d - width of annular gap; L - cylinder; R = cylinder radius.

Fig. 1B is an expanded view of Taylor vortices of Fig. 1A.

Fig 2 is cross-sectional view of an exemplary embodiment of a system for disinfecting or sterilizing a fluid including Taylor - Couette reactor.

25 Fig. 3 is a cross section of an exemplary Taylor - Couette reactor showing symmetric and grouped irradiating lamp configurations.

Fig. 4 is a cross section of another embodiment of the present invention.

Fig. 5 is a diagram of a square reaction channel.

Fig. 6 is a line graph showing *E. coli* inactivation versus Taylor number.